Forum: Economic and Social Council (ECOSOC)
Issue: Measures to enhance cross-border epidemic control globally
Student Officer: Prasidh Chhabria
Position: President

Introduction

Today, as in history, epidemics have the potential to spread across cities, countries, and even continents – with rapid globalization and mobility across borders, this spread has been expedited in recent decades. The study of epidemiology lays the foundation for combatting epidemics and their effect on public health, though this foundation seems to be insufficient in the context of modern epidemic control. The need for cross-border control and international cooperation is becoming increasingly significant as with globalization, public health no longer remains a national objective but necessitates a coordinated international approach. This framework seems to be lacking, as we have seen with the response plans to Zika and Ebola, which involved time lags and various difficulties.

In recent years, the world has faced epidemics such as the Zika virus disease, Ebola virus disease, yellow virus disease, meningitis, leptospirosis, Nipah virus infection, smallpox, Hendra virus infection, Coronavirus infections, Avian influenza, and other such fast-spreading infectious diseases. In general, these may be transmitted by direct contact, contaminated food or water, sexual contact, animals, and poor sanitation leading to contaminated surfaces. While leptospirosis is common in urban areas where sewage may be inefficient (spread by stepping in the urine of rats), avian influenza is carried by birds whose migratory patterns determine the transmission of the disease. Hence, it is important for epidemiologists and public health officials to be well aware of these patterns of transmission in order to effectively combat infections with disease-specific policies.

This means that the control of epidemics across borders requires a wide spectrum of specialized public health measures such as improved health care infrastructure, quarantine facilities, control of disease transmission across borders through air and sea travel, biohazard containment, promotion of sanitation amongst citizens and communities, and control over pollution and littering. Therefore, we see that the containment of potentially hazardous epidemics entails a multi-pronged approach, involving not only government responsibility but also corrective and preventive measures at the communal and individual level.
Definition of Key Terms

Disease outbreak\(^1\)

A disease outbreak is the incidence of occurrences of infection or illness in numbers greater than those which would be ordinarily expected in a specific geographical zone, population or time of year. An outbreak can be observed in either a small, range-bound geographical area, or alternatively span across borders into several nations. The outbreak may persist for a matter of days or weeks, or in certain cases, for several years.

Pandemic\(^2\)

An illness affecting people spread over a large area in geographical terms and impacting a statistically significant fraction of the population.

Epidemic\(^3\)

An illness which tends to affect an extraordinarily large number of people within a population, community or area in the same time frame.

Endemic\(^4\)

A condition or illness, with cases regularly noted and extremely regular among a specific subgroup of population, community or area in the same time frame.

Disease surveillance\(^5\)

Disease surveillance is an information-based study methodology which includes obtaining, analyzing and interpreting data originating from a plethora of sources. The data is collated and assimilated in preparation to be used in a suitable method chosen from a variety of possible alternative manners to evaluate the effectiveness of preventive and control health measures, track changes in pathogenic agents – such as statistical trends in the prevalence of resistance to antimicrobial drugs – complement health care planning, ensure the socially optimum allocation of suitable resources within the health care system, find communities or geographical regions at high risk to infection in order to target specific public health interventions, and build a useful archive of data concerning infectious activity for future study.

Monitoring\(^6\)

---

1 World Health Organization (http://www.who.int/topics/disease_outbreaks/en/)
5 Health Protection Surveillance Centre (http://www.hpsc.ie/abouthpsc/whatisdisease surveillance/)
Monitoring in terms of disease surveillance and response mechanisms is defined as the routine and regular act of assessing the degree of successful implementation of prioritized surveillance activities (tracking the successful execution of the action plan or framework) altogether pertaining to the performance of procedures of surveillance and feedback in public health.

**Epidemic preparedness**

Epidemic preparedness is defined as the prevailing standard of readiness for possible near-future epidemics and encompasses further the establishment of readiness plans, stockpiling, allocation of quarantine or isolation infrastructure, assigning of resources for public health response to outbreaks, etc.

**Surveillance sensitivity**

Sensitivity in surveillance is defined as the fraction of real cases in a study population that are found and registered via the established system. Sensitivity is especially significant in an early warning methodology devoted to detecting outbreaks. It is generally quite impractical to arrive at extremely precise approximations of sensitivity, because this requires the true count of cases in the study population be exactly known, a rather impossible task to implement in practical terms, as well as that the diagnosis of all registered cases be marked as confirmed beyond reasonable doubt to eradicate “false positives."

**Communicable disease**

Communicable diseases (also known as infectious diseases) are carried and caused by microorganism vectors such as parasites, fungi, bacteria and viruses that can be transmitted, directly or indirectly, from one individual to another. Some are spread through insect bites while others are the result of ingesting contaminated water or food, or sexual contact (sexual transmission through bodily fluids).

**Global public good**

A global public good is a good or service which is public in economic nature on a world scale. Public goods are characterized by their non-rivalrous and non-excludable nature. Non-rivalrous refers to the condition that one consumer’s use of the good does not reduce its accessibility to another consumer. Non-excludable refers to the condition that certain consumers can be excluded from consumption of the good, such as by charging a price. Global public goods such as health care are, in ideal situations, available to all in a non-rivalrous, non-excludable manner.

---

6 World Health Organization Communicable Disease Surveillance and Response Systems Guide
7 World Health Organization Communicable Disease Surveillance and Response Systems Guide
8 World Health Organization Communicable Disease Surveillance and Response Systems Guide
9 World Health Organization (http://www.afro.who.int/en/communicable-diseases/)
Morbidity\(^{11}\)

Morbidity refers to the rate of prevalence of a disease in a population (determined by the count of individuals diseased).

Mortality rate\(^{12}\)

A count of the number of deaths in a particular geographical region due to a health outcome such as a disease.

Global disease burden (GDB)\(^{13}\)

Global disease burden is an indicator that “measures burden of disease using the disability-adjusted-life-year (DALY). This time-based measure combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health.

Global health security\(^{14}\)

Refers to the ideal condition of the world being free of infectious disease. Though unrealistic, it is useful when evaluating policy or conducting epidemiologic studies.

Epidemiologic alert\(^{15}\)

These are documents released by the Pan American Health Organization (PAHO) including recent public health occurrences on an international scale, along with recommendations from the PAHO and World Health Organization (WHO) in conjunction with Disease Outbreak News issued by the WHO.

Background Information

As an extension to the International Health Regulations by the World Health Organization in 2005, the 2014 Leadership Priorities of the organization referred to supporting nations in their efforts to implement networks to allow an efficient, coordinated response to any unexpected epidemic or outbreak. However, such a coordinated framework has unfortunately not been achieved or established in satisfactory operational terms.

In the South East Asia Region (SEAR), cross-border cooperation has repeatedly been emphasized as a primary issue of priority which requires immediate action at the national level and more significantly the district level. The flow of migrants across international borders, particularly those which are associated with illicit operations have been noted as the main issue leading to such notable exacerbation of the issue of cross-border transmission of infectious diseases over decades. Furthermore, the issue is


\(^{13}\)World Health Organization GDB project

\(^{14}\)World Health Organization GDB project

\(^{15}\)Pan American Health Organization. www.paho.org
impacting not only nations in the WHO designated SEA Region, such as Bhutan, Pakistan, India, Indonesia, Bangladesh, Timor-Leste and Thailand, but also the Mekong Basin in Yunnan province of the People’s Republic of China, Cambodia, Vietnam and Laos. To be efficacious, measures to ameliorate public health concerns such as malaria, tuberculosis, kala azar, and AIDS must intrinsically involve cooperation across borders between concerned nations, whether affected or unaffected by an epidemic. These measures should not view an illness as a single isolated public health outcome but focus instead on integrated, cooperative response methods. All pertinent physical and human resources including but not limited to government-associated agencies (such as for health care, immigration, and law enforcement), local non-governmental organizations (NGOs) and populations or communities on a district or county level need to be fully mobilized and aware of their role in a global or cross-border public health response. This was highlighted in a recent conference of the WHO by Dr. Margaret Lumunu, who noted “problems occur in implementing cross-border activities in socially and politically unstable environments. Sadly, these are the areas usually affected by epidemics.”

There are many systems which serve as prerequisite to the execution of cross-border programs for control of infections such as polio, AIDS, kala azar, tuberculosis, malaria, and in recent years Ebola and Zika. Several nations have lately received criticism for their lack of attention to these systems or their inefficiencies. These prerequisite systems encompass the following: a guarantee of the right of medical patients to be administered necessary drugs, bed-nets, physical and sexual health education, contraceptive methods and other goods, and their accessibility irrespective of nationality or permanent residence; frameworks developed through periodic cross-border meetings involving respective nations; charting out collaborative strategic response programs which include cross-border referral mechanisms such as for malaria and sexually-transmitted infections including HIV/AIDS; a complete and thorough mapping of health care centers offering treatment on both sides of the border; the arrangement of standardized training apparatus, and continuation and maintenance of regular correspondence between two nations on either side of the border in question. For cross border referral mechanisms, WHO expert “Dr Sow focused on the concept of networking and timely support to countries. He explained that membership would be determined by the qualifications, experience and skills of the individuals. Members could then be linked or contacted through e-mail, telephone, fax or post. The network could become operational through regular information sharing and updating of the membership.”

In recent decades, several cross border meetings as outlined above have been encouraged and hosted by the World Health Organization. Notwithstanding, cross-border cooperation is still not institutionalized in most Member States which affects responses to epidemics begun around local border regions.

---

16Epidemic Alert and Response: Report of a cross-border intercountry meeting on disease surveillance and response in the Great Lakes region
17Dr Idrissa Sow, WHO Regional Office for Africa, 2016
The International Health Regulations (IHR) were established in 2005 by the World Health Organization after 150 years of international diplomatic efforts to achieve a balance between efficacious communicable disease control and international trade, while attempting to minimizing the severity of trade restriction required to stop the spread of disease across borders. As per the WHO definition, "The International Health Regulations (2005) (hereinafter "the IHR" or "the Regulations") are an international agreement that is legally binding on 194 countries (States Parties), including all WHO Member States. The IHR define their "purpose and scope" as: "to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade". Since their entry into force on 15 June 2007, the IHR directs and governs particular WHO and States Parties activities aiming that protect the global community from public health risks and emergencies that cross international borders."\(^{18}\)

The Regulations solely aim to achieve this goal to some degree, and the document is in the process of being reviewed and edited at present. This set of edits or alterations will need to achieve the best results in the debatably conflicting interests of public health and trade. While the latter moves an essential flow of products and incomes across borders, the former may, similarly, transmit deadly pathogens. Therefore the regulations must attempt to achieve this compromise if they are to successfully achieve their potential of securing the human race from major pandemics or epidemics without needlessly causing adverse economic effects or economic decline.

Generally, most control methods adopted by a government to protect citizens from contagious diseases may be accurately demarcated as public goods devoted to health. This includes the provision of potable water and maintenance of sanitation, in other words providing a good that is both non-rivalrous (one’s consumption does not prevent another’s) and non-excludable (consumption may not be restricted by factors such as pricing).

Nationwide contagion response consists of two components: identifying a health outcome, and implementing steps to curb it. Many Member States have established regulations governing both parts: the continual monitoring of contagious infections, and the appointment of government agencies to handle outbreaks noted. In several more economically developed countries (MEDCs) such mechanisms have been continuously assessed, examined and re-developed, bringing these nations to the present stage in which monitoring processes are more focused on detecting rare faults in regular response processes as compared to identifying entire new public health concerns.

It is necessary to establish in the context of international diplomacy and government and UN intervention that all processes of surveillance and response in a nation are controlled by relevant national legislation, including laws such as those requiring physicians to inform central health agencies of notable health outcomes observed, including any new unidentified infections or change in frequency of

\(^{18}\) WHO. 10 Things about the IHR. http://www.who.int/ihr/about/10things/en/#whatis
observed cases of an existing epidemic. Another example is water companies who are bound by inflexible legislation on the methods they must use to check the purity of drinking water and how often they must conduct these checks. Apart from basic public health regulations such as those aforementioned, the judicial system is becoming increasingly liberal, with any and all consumers free to take legal action against producers of substandard medical drugs, while national legislation is once again put in action to resolve disputes of this sort. However, on an international level, such legislative or internationally ratified frameworks do not exist to support cross-border control of epidemics.

**The economics of epidemic control: a public good**

The response to epidemics on an international level presents characteristic issues: the “free rider problem”, for one, is found in the outbreak notification process. All citizens are expected to have access to such notifications, but they are underprovided as lack of profitability serves as a disincentive to the private sector from contributing to such systems. This is perfectly tied up with the fact that health care as a whole, whether on a local, national or global scale, is often underprovided especially by the profit-maximizing private sector, and hence requires a significant portion of government budget to be provided. This often interferes with the quantity and quality of essential services involved in cross-border epidemic control.

Irrefutably, epidemics and fast-spreading communicable diseases are a health care priority for all Member States as and when such situations arise. However, the same prioritization is not seen on an international level when resources could be mobilized to combat such diseases as they begin to permeate through international borders. In essence, the difference between this prioritization on national and international levels can be seen through the lens of legislation – on a global scale, there is no binding legislation which requires countries to report cases of epidemics to the World Health Organization or prevent the transmission of communicable diseases to other nations through its borders, whereas on a national scale, physicians are required to report and prevent cases in a similar manner. For example, in the USA, an advisory law encourages civilians to report outbreaks to health departments which will share relevant updates to the Center for Disease Control (CDC) via the National Outbreak Reporting System (NORS). However, such frameworks are not followed internationally. This is perhaps the root cause for the inherent inefficiencies we see in modern day cross-border epidemic response mechanisms.

Certainly, if an international agreement was arrived upon to encourage countries to provide epidemic updates, one can the high probability that the “free rider problem” would arise. Countries would receive updates from bordering nations, and as a consequence be incentivized to adopt internal measures to protect its own citizens from the epidemic. However, in rational economic terms, nations themselves would not be incentivized to channelize resources towards providing these updates to other nations.

---

Hence national health care systems would improve in efficiency while cross-border disease response systems would be relatively weak in comparison.

In addition to the free rider problem, nations also face another issue, theorized in economic terms of game theory – the prisoner’s dilemma. In economic terms, this translates to the lack of incentive to provide other nations with updates on epidemics. This has a deceptively simple economic basis: countries are aware that reporting epidemics in their own nations would cause their economies to decline, in terms of income from tourism and industry. Hence they face an inherent dilemma; this is aggravated as they face another economic issue, namely temporal asymmetry. If a country declares the occurrence of an epidemic within its borders to neighboring nations, they may impose sanctions on the affected country much more readily than they would lift the sanctions once the epidemic is eradicated; this can be detrimental for the affected nation’s economy, which is theoretically already reeling from the financial strains of combating a nationwide epidemic. For example, Liberia and Sierra Leone did not provide alerts internally or to the WHO formally in the early stages of the Ebola epidemic. This is one shortcoming which resulted in the rapid spread that ensued. In the practical sense, economies should be well aware of these theoretical incentives and disincentives before the international notification system is put in place, as these would have bearing on international security and epidemic response.

**Case Study: CHOLERA**

In historical records, there is no paucity of instances of large populations being plagued by outbreaks of cholera. Writings from the philosophers Galen (129 AD to 216 AD) and Hippocrates (460 BC to 377 BC) had already begun to describe an illness which sounded similar to modern-day cholera, and several historical sources indicate that a natural malady to cholera had been discovered in the Ganges Plain since times of ancient civilization. Has modern knowledge of cholera advanced significantly, so as to target the disease not only on the individual and population level, but also across borders, transnationally?

Research towards the causes and treatment options for cholera began only in the 19th century according to records. In 1817, cholera first appeared as an endemic in the South East Asia Region (SEAR) and thereafter began to spread across countries and even continents. Several pandemics followed, which impacted the world as a whole for the very first time in the history of epidemiological records.

By 1961, seven cholera epidemics had spread through the world, the latest originating in Indonesia and spreading rapidly through Europe and Asia. Through Central and South America, the seventh epidemic caused approximately 400 thousand instances of disease (recall “morbidity”) and over the deaths of over 4000 (recall “mortality”) in the Americas by 1991. Recent cholera epidemics have been responded to more effectively and promptly. A report on the cholera epidemic in Haiti states, "In other urban areas, particularly the vast majority of neighborhoods in Port-au-Prince, only a few cases are
already identified. There the situation is properly controlled and healthcare facilities are able to cope. It should be noted that most emergency camps established after the earthquake of January 2010 are in this situation. Cholera has made its appearance, but without causing the damage anticipated by many humanitarian actors. In fact, the inhabitants of these camps have access to water and sanitary facilities often better than in the surrounding slums and are subject to specific epidemiological surveillance in place since the earthquake with the support of the US Centers for Disease Control."

Epidemics are anything but stagnant in nature, dynamic in every way, including the pathogenic nature. In 1992, a new strain of cholera appeared in Bangladesh and began a new epidemic. The Bay of Bengal, in the spring, - hosting the cholerabacterium–harbored the first outbreak which was seen amongst coastal populations. Sewage containing the cholera pathogenenters the system and remains untreated on account of poor sanitation and water supply. As a result, towards the end of the monsoon season, cholera-infected sewage entered drinking water flow, hence leading to a new outbreak. Taking inspiration from this example, we can see that global health guidelines must be flexible enough to incorporate the inevitability of natural selection in microbes as pathogens adapt and evolve to cause new epidemics.

While attempting to control an epidemic across borders, the transnational impacts of epidemics must first be understood holistically. Human suffering, while arguably the only direct impact of the cholera pathogen, gives rise to innumerable indirect impacts, including social upheaval in a nation and economic instability which curbs development. Neighboring nations often tend to respond by restricting travel to and from the affected countries without sensible policy to allow travel while controlling transmission of disease, or restricting trade with the affected nation especially in terms of agricultural produce. For instance, the cholera epidemic which began in 1991 in Peru strained the country’s budget by 770 million USD as a result of food product embargos and a dwindling tourist industry due to panic amidst bordering nations. Hence the surveillance and monitoring of cholera would involve a two-pronged approach – reporting cases on a local level, and notification systems on a transnational scale.

Diagnosis for cholera is based on observations made on patients who report symptoms such as or related to watery diarrhea. This is then confirmed through laboratory procedures such as stool sampling to isolate the *Vibrio cholerae* pathogen. These measures require a skilled medical workforce, appropriate technology and infrastructure; epidemic control on a global scale depends critically upon diagnosis and reporting systems on the local level.

Epidemic preparedness is recommended as a priority to all countries neighboring affected nations; this involves heightened disease surveillance and monitoring systems to improve readiness of the medical sector to deal with the epidemic should it cross borders. The International Health Regulations of 2005 have changed this principle slightly by no longer requiring nations to report increased frequency of cholera cases in the case of an endemic outbreak, though this is always
encouraged and reporting should ideally be done regardless. Nevertheless, once again, the “free rider problem” applies when it comes to international notification of endemic disease.

Preventing epidemic and endemic cholera (or any communicable disease with the potential to cross borders) lies in infrastructural developments and investments in the long term as well, to make the country’s public and private sectors better armed to face future outbreaks. Methods to target sanitation include the creation and/or renovation of piped drainage systems with advanced water purification facilities (including chemical means of coagulation and chlorination), government intervention targeting households (promotion of water filtering or disinfection by chemical or solar means, or the associated safe storage of water to avoid wastage while preventing the harboring of pathogens), and finally constructing mechanisms for secure disposal of garbage and sewage, which may include latrines if well maintained, a concern in several less economically developed countries (LEDCs).

These interventions often involve long-term investment in infrastructural development schemes for public health. As LEDCs are often focused on short-term economic growth, it may be difficult for these countries to allocate sufficient resources to infrastructural developments. Hence, it may be necessary for MEDCs to contribute aid, another situation requiring international cooperation in the context of epidemic control.

The World Health Organization maintains that in recent years, cases of cholera have remained extremely high in number globally. Two years ago, 172,454 instances were observed in 42 Member States, causing over 1300 deaths. However, herein lies another major concern; the sensitivity (as defined previously) of surveillance systems, i.e. the number of actual cases which are documented and presented in figures, is limited, as countries often fail to report a certain number of cases for fear of adverse impact on tourism and industry. This is detrimental on a global scale when dealing with epidemics, and countries must be helped and incentivized to carry out full reporting of medical events.

Figure 1: Mapping Cholera Epidemic to Aid the Public Health Response in Haiti
Therefore we see, in the case of cholera as a case study, the pressing need for a coordinated, multi-pronged approach to epidemic control, nationally and transnationally. Surveillance and monitoring require urgent upgradation, while sanitation and resource management are also key. In short, virtually all sectors of the nation, from healthcare and tourism to the judiciary and legislative systems, are involved in or affected by the epidemic and response process.

**Figure 2: CDC Zika Response Plan**

**Case study: ZIKA**

Originating in (initially endemic to) Brazil, the Zika virus, carried by the vector *Aedes aegypti*, has given rise to a serious epidemic in recent years. The virus was initially found in monkeys in the Zika jungle in Uganda, in the year 1947. Subsequently, it was isolated in humans in 1952 in Tanzania. Since the virus’ first outbreaks in 2007 and 2013, the disease has spread quickly across borders to present a dire public health situation today. Originally, outbreaks were recorded in the Federated States of Micronesia in the year 2007; subsequent outbreaks were generally clustered around the equator where the vector *Aedes aegypti* is commonly found. Hence geographical factors and the pathogen’s biological nature are also factors to consider before adopting policies to control epidemics. As of 2016, around 40 countries have reported indigenous outbreak of the disease, while other cases have been recorded in Europe, North America, South America, and the Pacific.

Several governments and NGOs have attempted to implement measures to improve the cross-border control of Zika transmission, and have provided several recommendations as per the results of these measures. The International Health Regulations of 2005 Emergency Committee convened in February 2016, declared that congenital malformation such as microcephaly, associated with Zika, are now a Public Health Emergency of International Concern (PHEIC). This committee further recommended improved surveillance and R&D (research and development) to allow aggressive

---

20 Source of image: London School of Hygiene & Tropic Medicine
measures to be effective in controlling the transmission of the Zika virus, particularly harming vulnerable groups such as women who are or may be pregnant. See Figure 2 for the CDC framework adopted.21 Hence, both case studies illustrate the need for a collaborative framework stressing on surveillance systems and appropriate legislative backing for response plans.

Major Countries and Organizations Involved

World Health Organization

The responsibility of the World Health Organization in this field includes the provision of technological and institutional support to Member States, and assistance in improving the mobility resources to be dedicated towards epidemic control. Cross-border epidemic control mechanisms must also be sustainable in the long run, which the World Health Organization is ensuring, in collaboration with nations in South East Asia. The WHO is further working on ways to increase the relevance and applicability of the 2005 International Health Regulations. The WHO Leadership Priorities of 2014 refer to communicable and non communicable diseases, but the basic pillars of their commitments include:

- Revising the International Health Regulations (IHR) of 2005
- Improving accessibility of medical products
- Addressing socio-economic and environmental factors contributing to disease
- Working towards the Sustainable Development Goals hand-in-hand with the IHR.

United Nations High Commissioner for Refugees

The UNHCR has been working to improve epidemic controls in conjunction with refugee camps, as refugees can be prominent carriers of deadly infections across borders, especially those who are coming from areas characterized by poor sanitation or hygiene. This includes improving surveillance facilities through the registration and tracking services employed by refugee camps, as well as better notification mechanisms on an international scale. For example, as of May 22, 2015, a cholera epidemic had killed 31 in Tanzania, and the UNHCR reported this on their website as a top priority to be controlled and monitored, owing to the influx of Burundian refugees making the situation a top priority. UNHCR spokesperson Mr. Arian Edwards, in conversation with the media in Geneva, noted that the epidemic had “become a new, worrying, and growing additional complication”.22 Hygiene promotion was the message spread through public health campaigns at the time by the UNHCR. This was executed with the

---


assistance of community volunteers and leaders, and at water distribution stations. Furthermore, UNHCR began to decontaminate or fumigate ships, public transport vehicles carrying any refugees.

United Nations Children’s Fund (UNICEF)

UNICEF has been known to collaborate with several Member States to combat the spread of epidemics in the past. For example, UNICEF has helped Nigeria with water control and other cholera-related services in the monsoons. It also chases several AIDS and malaria control targets in conjunction with several African countries. However, UNICEF too has no international general framework for epidemic control; rather, it has committed itself to the control of specific epidemics.

Timeline of Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>World Health Organization publishes the International Health Regulations</td>
</tr>
<tr>
<td>2008</td>
<td>The International Health Regulations are revised to release a second edition</td>
</tr>
<tr>
<td>November 2011</td>
<td>Brazil declares Zika a public health emergency</td>
</tr>
<tr>
<td>December 8, 2013</td>
<td>First case of Ebola</td>
</tr>
<tr>
<td>June 23, 2014</td>
<td>Ebola is termed an “uncontrollable epidemic” by Doctors Without Borders</td>
</tr>
<tr>
<td>September 18, 2014</td>
<td>The UN Security Council declares the Ebola epidemic a major threat to safety and peace in western Africa</td>
</tr>
<tr>
<td>Early 2015</td>
<td>Zika fever epidemic begins in Brazil and spreads through North America and South America</td>
</tr>
<tr>
<td>July 14, 2015</td>
<td>Total of 50 countries affected by Zika</td>
</tr>
<tr>
<td>January 2016</td>
<td>Genetically modified <em>Aedes aegypti</em> mosquitoes released throughout Brazil as</td>
</tr>
</tbody>
</table>

advised by the National Biosafety Committee

13 January 2016
11,315 deaths due to Ebola
Liberia declared Ebola-free

February 2016
Zika epidemic declared an international health emergency by WHO

Relevant UN Treaties and Events

While the UN has not passed any substantial resolutions concerning cross-border epidemic control measures in general or as a whole, the following may serve as effective examples to outline disease-specific measures that have successfully been adopted in the past:

- Security Council Resolution 2177, 18 September 2014 (S/RES/2177)

Previous Attempts to solve the Issue

Other than guiding manuals and documents published by the World Health Organization, there is a paucity of coordinated international efforts to curb the cross-border transmission of epidemics. A coordinated, global response framework is required to handle the crisis in general, regardless of the form of communicable disease or specific pathogenic characteristics, as the nature of new epidemics in the near future is difficult to predict. However, as previous attempts are not general and only include dedicated response plans to particular pathogens, the avian influenza response plan can be studied as an effective example of prior attempts to target cross-border transmission.

There have been many conferences on avian influenza but few concrete steps have been taken on crucial issues such as the management of border health surveillance. Collaboration for emergency preparedness has been identified as a priority, and it has been suggested that countries prone to epidemics establish preemptively a network of consensus among neighboring nations regarding information exchange and notification of disease spread. WHO called for an international meeting on Emerging Infectious Diseases in Thailand in February 2007 to evaluate the effectiveness of cross-border disease control plans in action and improve the response framework for transnational cooperation. The conference proved to be a stage for nations and global healthcare officials to discuss the scope for
improvement of fundamental International Health Regulations (IHR-2005). Viewing these measures in context of the sensitivity of transnational matters, political agreement and commitment is of utmost importance to the control of epidemics. The need to institutionalize such political support such as in South Asian Association for Regional Cooperation (SAARC) and Association of South East Asian Nations (ASEAN) was stressed to allow increased political support, regional collaboration and the long term ability to keep up cross border methods.

Further, a conference known as the International Congress on Infectious Diseases (ICID) completed its 18th session in 2016. The President John Cohen encapsulated the function of the conference: “The 18th ICID will encompass all of the fields of infectious diseases with particular attention being paid to the major challenges of the region including, of course, Zika, dengue and other related viral infections, AIDS, tuberculosis, pneumonia, and enteric and parasitic infections. ISID has been at the forefront of the One Health movement and this is reflected in our meetings, which also have a major focus on disease prevention and vaccine implementation. ISID meetings are distinguished by their unique blend of basic science and clinical practice."  

Another interesting example of cross-border epidemic control pertains to the Ebola virus. Several airlines cancelled flights to Sierra Leone, Guinea, Liberia and numerous countries closed their borders to citizens of these countries, after the spread of Ebola from Liberia to Nigeria due to air travel in August 2014. This deficit of commercial flights led to delays in the supply of humanitarian aid, which led to shortages in food, medical and protective equipment within these nations. Here, one can see the adverse economic impact of delayed mobilization in cross-border control. The minority of airlines which continued travel required travelers to be screened before boarding. Exposure-and-symptom questionnaire and temperature checks with handheld thermometers for the travelers were implemented by airports and health authorities with the help of the CDC Border Health teams in Guinea, Liberia, Nigeria and Sierra Leone (followed by Mali and Senegal). The passengers who claimed to have exposure to or symptoms of Ebola were made to go through secondary assessments by the health screeners. The travelers who showed symptoms were not allowed to travel and went sent for further diagnosis and medical treatments. Passenger manifests for departing flights were matched with national databases of known contacts as they became more robust. In this way, some continued commercial flight travel to these countries was maintained since the airports of countries with Ebola outbreaks met the standards of WHO recommendations. This was an essential way for the transfer of supplies and response personnel.

There were about 300,000 travelers screened in Sierra Leone, Liberia and Guinea during the period between August 2014 and January 2016. Out of all the travelers, only four cases of Ebola were transferred by commercial air travel to three countries – two to the United Stated of America, one to Italy and one to the United Kingdom, despite the implementation of screening. None of the travelers had

24 18th International Congress on Infectious Diseases http://www.isid.org/icid/welcome.shtml
shown severe symptoms during the screening. The exit screening had no reports of Ebola detection. Communication tools, messages specific to various populations and organizations and job aids for airlines and the airport staff were provided by the Centers for Disease Control and Prevention (CDC) to encourage the international response. Some materials were provided on CDC websites as templates to help other countries in creating their own communication responses, along with information provision through webcasts and trainings.

Commercial maritime transportation for food and other essential goods delivery and the export of supplies that sustain national economies, were required by countries in West Africa including Guinea, Liberia and Sierra Leone. To prevent further strains on these countries’ delicate systems, CDC aided national seaport and maritime authorities by assessing health security protocols at popular seaports and training staff to inculcate skills pertaining to the recognition and response to Ebola. The establishment of temperature checkpoints for port access, practice of emergency medical response procedures, establishment of onsite isolation facilities, implementation of personal protective equipment requirements for staff prior to boarding vessels, and the restriction of access to vessels in port and disembarkation of seafarers, inclusive of the cancellation of shore passes and crew transfer were established by port authorities.

Change in needs, newly identified risks, and public concerns caused the United States of America to change the travel and border health measures. CDC improved and expanded coordination with the United States Port of Entry and community partners in order to evaluate and fight risks for symptomatic or ‘at risk’ travelers – at the beginning of the crisis. The strategy of educating travelers to self-monitor symptoms and seek health care was supported by communication materials.

In August 2014, CDC issued interim guidance on the basis of clinical criteria and exposure risk for the provision of a standard for public health measures in the United States of America. The measures were varied – ranging from monitoring (primarily self-monitoring) to controlled movement (e.g., precluding long-distance travel on commercial vehicles such as aircraft, ships, buses, or trains) and they aimed to apply the least restrictive measures necessary to protect communities and travelers.

As CDC’s response to the Ebola pandemic terminates, travel and border prosperity measures can be checked to assess whether they met the communicated targets: prevention of international spread of disease, instruct and ensure individuals and groups of travelers, and limit interruption of global travel and exchange. These measures fall into four general classifications: risk assurance and portrayal, risk correspondence, risk appraisal of people, and hazard administration on the premise of individual evaluation. Albeit spread of Ebola through air travel is an intrinsically low-likelihood occasion, the negative impacts of such spread would be high, including potential for disturbance of travel and exchange to a highly vulnerable area. Thus, any thought of travel and border health measures must adjust general health risk against the view of such hazard by travelers, the travel industry, and government leaders. These measures request steady appraisal and refinement to conform to changing
plague attributes. When suggesting and executing such measures, CDC expects to ensure common freedoms using minimum prohibitive means.

In spite of the fact that WHO announced the end of the Public Health Emergency of International Concern and suggested end of exit screening on March 29, 2016, exit screening continued in Guinea, Liberia, and Sierra Leone in light of a group of cases in Guinea with constrained spread to Liberia. As of June 6, 2016, when this report went to the press, no new cases had been accounted for and exit screening was expected to be discontinued. Exit screening effectively tended to vulnerabilities that empowered exportation of Ebola to Nigeria by an effectively symptomatic explorer, limiting the quantity of sent out cases and preventing travel by overtly symptomatic travelers. Isolating the adequacy of exit screening at airplane terminals from other general health measures (e.g., recognizing and overseeing cases and exposed people at the group level or teaching travelers) or the obstruction impact of the screening procedure is unfavorable. In any case, these coordinated efforts contributed definitively to controlling the pestilence. Exit screening posed to be a hindrance for the influenced nations since assets and staffing requirements for these exercises contended with different needs. These challenges in all likelihood were balanced by immaterial advantages, including consolation of aircrafts and explorers of the proceeded with security of air travel that doubtlessly added to the readiness of a few carriers to keep up flight plans inside the locale all through the epidemic.

Operationally, the United States upgraded passage risk evaluation and administration program prevailing as a system to analyze individual hazard, teach travelers and encourage postarrival administration of travelers including active or direct active observing by general health specialists. Piping of voyagers from nations with Ebola episodes to chosen air terminals instead of redirecting planes was considerably less troublesome to the travel business. The capacity to track and screen explorers in any U.S. state or region, including their development among states, brought about fast recognizable proof and assessment of roughly 1,400 symptomatic travelers, none of whom had Ebola analyzed. Be that as it may, the operation was not without costs a lot of which have been borne by the government, and the resulting weight to health divisions in the United States and burden to carriers and explorers. The opportunity costs of diverted health assets should likewise be considered.

The harder task of avoiding, distinguishing, and reacting to the spread of Ebola across very permeable land orders in West Africa brought about a multi-sector joint effort, more noteworthy attention to population development, upgraded techniques and assets to oversee wiped out explorers in remote outskirt areas, and enhanced binational and multinational correspondence and participation. However, there is much to be done to assemble and keep up these border health frameworks as a component of the broader public health infrastructure.

Possible Solutions
The main international framework currently used for epidemic control are the WHO International Health Regulations (IHR). The fundamental issues with the current form of the IHR are the following: firstly that countries are not provided with an incentive to notify neighboring nations about an outbreak so as to overcome the free rider problem; secondly, that only three diseases (yellow fever, cholera and dengue) are covered, while other prominent diseases such as hemorrhagic fevers or meningococcal meningitis are left out. Furthermore, the guidelines have been rather ineffectual in preventing panicked reactions to outbreaks in terms of protectionist barriers to trade, and this limits the reporting of disease cases due to fear of adverse impact to the economy. This worsens the premise by a mechanism of positive feedback – the World Health Organization cannot step in adequately, as it only has access to underestimated figures of disease prevalence, so the disease is not adequately addressed using appropriate response plans.

Hence, the primary focus of the ECOSOC would be to urge specific modifications to the International Health Regulations. Delegates are encouraged to go through these guidelines to point out further specific additions or modifications which would be beneficial to cross-border epidemic control. These would include technical guidelines for curbing epidemic spread at international ports of entry or exit, real-time coordinated system run by the WHO to monitor public health outbreaks around the world, integrating national surveillance systems to increase sensitivity, and improving financial and other incentives to nations to adopt these technologies and update systems. Finally, the goal of the ECOSOC should also involve increasing the sensitivity of disease surveillance systems, such that all disease cases are reported and recorded, by encouraging countries to look past economic disincentives and political barriers to realistically report disease prevalence. Another goal should be, in general, to increase epidemic preparedness internationally. This can be achieved by ensuring certain prerequisite skills for health staff posted at international borders, which include:

- Scientific and technical epidemiological mastery in line with the national response program, including how to define a case, surveillance skills involving the measurement of prevalence, reporting and notification;

- Networking and communication abilities, such as for notifying NGOs, the media, and the government or central health agencies of significant developments in public health in border-proximal areas;

- Administrative abilities such as logistical skills and making decisions according to specified national and (once developed) international frameworks.

Further it is necessary that on the district or local level, health care facilities as well as beneficiaries and volunteers be trained adequately in vector control, preventive health practices, and diagnosis and control of disease in local terms.

Indicators for disease diagnosis and control measures for its spread should be standardized internationally with each new epidemic, agreed upon by experts from affected and bordering countries.
along with the WHO, while surveillance and reporting must also be standardized in order to achieve a global coordinated response framework. Delegates are encouraged to explore how this may be achieved using national legislation as well as diplomacy, such as by facilitating the collaboration of public health experts or representatives in WHO. For example, a nationwide law could mandate that civilians report any health outbreaks in their local neighborhoods or communities and incentivize the same by creating an easy online portal which is accessible and convenient enough so as to not serve as a hindrance to citizens from following through on the protocol.

The current situation requires prioritization, as each Member State must constantly be aware of which specific communicable diseases are at high risk of spreading to another nation across its borders, as well as be well informed of which specific pandemics or epidemics may enter the nation through porous borders, and tracking and documentation must be made accessible by local and central government agencies in order to streamline the process by which the movement of diseased individuals may be monitored. Countries must also factor in the idea that communicable diseases transmitted by migrants may be spread differently according to varied migration patterns, and nations should be equipped to predict and respond strategically to specific situations, considering the prevalent migration pattern.

Regional officials such as the Customs Immigration Quarantine (CIQ) authorities and populations in border regions should be educated to communicate regularly, sharing information to devise and enforce response plans across borders. There is a pressing need for communities and migrants to be, if not already, prioritized in the prevailing surveillance systems so that monitoring may be more sensitive and appropriate for assessment.

Member States’ national health agencies should strengthen the skillset of their field epidemiologists to develop early warning protocol and better monitor disease transmission with heightened sensitivity and limited inaccuracy.

Apart from the above necessary steps for Member States to adopt, it is recommended that the World Health Organization, too, improve upon its cross-border control and response processes by including certain modifications to increase sensitivity and responsiveness as well as reduce information losses leading to inaccurate assessments and the development of substandard or unsuitable response plans.

Representatives from the World Health Organization should maintain constant correspondence with Ministries of Home and Foreign Affairs, and Ministries of Health and Labour for cross-border response to communicable diseases to establish or better utilize current international networks such as SAARC, the Global Outbreak Alert and Response Network (GOARN) (read more about this in Appendix) and ASEAN.

A focal unit and person should immediately be designated at the WHO Regional Office for cross-border control of priority CDs, and efforts made to speed up the adoption of International Health
Regulations by the World Health Assembly and to coordinate among technical units and with country offices;

Another solution which has been suggested repeatedly but rarely implemented is the introduction of clearing houses for documentation, reports, and data on migration and disease surveillance to standardize and streamline the process at borders, which should be connected to a reporting system directly linked to the World Health Organization regional office and the national health agency of the Member State. In general, the need of the hour encompasses coordination, standardization, and efficiency.

In conclusion, the world needs a coordinated strategic response framework that consists of a multi-pronged general approach which can be applied and modified to future epidemics. If prominent organizations and Member States agree upon the fundamental basis provided by one or more coordinated frameworks for cross-border epidemic control, it is likely that international responses to future epidemics (which cannot be predicted in the present) will be more efficient in terms of resources and time lags, as nations will only have to modify the existing framework to suit contemporary needs rather than formulate an entirely new response plan. The World Health Organization has come closest to achieving this goal on a global scale, however international cooperation is further encouraged to formulate such a framework in order to internalize the all-round benefits posed by a global public good such as health care.

Bibliography


**Appendix**


